This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A multi-functional fibrous monolith structure including one or more components comprising:

an inner ceramic phase;

an intermediate ~~metal~~ phase selected from the group consisting of ceramics, metals and mixtures thereof; and

an outer ceramic phase,

the phases being arranged in a predetermined manner and at least one of the phases is effective for performing at least one non-structural function and at least one of the phases capable of bearing mechanical loads and stresses.

2. (currently amended) The multi-functional fibrous monolith structure in Claim 1 wherein the intermediate ~~metal~~ phase ~~is a~~ is an interface strip deposited in a controlled array format to allow for strain measurement.

3. (currently amended) The multi-functional fibrous monolith structure in Claim 1 wherein the intermediate ~~metal~~ phase ~~is a~~ is an interface strip deposited in a controlled array format to allow for temperature measurement.

4. (currently amended) The multi-functional fibrous monolith structure in Claim 1 wherein the intermediate ~~metal~~ phase ~~is a~~ is an interface strip deposited in a controlled array format to allow the measurement of damage propagation.

5. (currently amended) The multi-functional fibrous monolith structure in Claim 1 wherein the intermediate ~~metal~~ phase ~~is a~~ is an interface strip deposited in a controlled array format to allow for temperature measurement and strain measurement.

6. (currently amended) The multi-functional fibrous monolith structure in Claim 1 wherein the intermediate ~~metal~~ phase comprises W and Re.

7. (currently amended) The multi-functional fibrous monolith structure in Claim 1 wherein the inner ceramic phase is ZrB_2, the intermediate ~~metal~~ phase is BN, and the outer ceramic phase is B_4C.

8. (currently amended) The multi-functional fibrous monolith structure in Claim 1 wherein the inner ceramic phase is Tungsten Carbide, the ~~inner metal~~ intermediate phase is a Tungsten-Iron-Nickel Alloy, and the outer ceramic phase is Tungsten Carbide.

9. (currently amended) The multi-functional fibrous monolith structure in ~~Claim 1~~ Claim 2 incorporated in a drill bit insert capable of measuring strain during drilling operation.

10. (currently amended) The multi-functional fibrous monolith structure in ~~Claim 1~~ Claim 2 incorporated in a machine tool capable of measuring strain.

11. (previously presented) The multi-functional fibrous monolith structure in Claim 1 incorporated in rocket nozzle capable of generating an electric current.

12. (previously presented) The multi-functional fibrous monolith structure in Claim 1 incorporated in a rocket nozzle capable of measuring temperature.

13. (previously presented) The multi-functional fibrous monolith structure in Claim 1 incorporated in a drill bit capable of measuring temperature and strain during drilling operation.

14. (currently amended) The multi-functional fibrous monolith structure in Claim 1 incorporated ~~in a~~ in an electronic casing to prevent neutron-related damage of electronics behind the casing.

Claims 15-24 (Canceled).

25. (previously presented) The multi-functional fibrous monolith structure of Claim 1 wherein one or more of the phases contains an electro-mechanically active ceramic material.

26. (previously presented) The multi-functional fibrous monolith structure of Claim 1 wherein one or more of the phases is piezoelectric.

27. (previously presented) The multi-functional fibrous monolith structure of Claim 26 where one or more of the phases contains a ceramic material selected from the group consisting of lead zirconate titanate, lead lanthanum zirconate titanate, lead barium zirconate titanate, lead stannate zirconate titanate, lead magnesium niobate, and mixtures thereof.

28. (previously presented) The multi-functional fibrous monolith structure of Claim 27 wherein at least one other phase includes a conductive ceramic, metallic or ceramic-metallic material.

29. (previously presented) The multi-functional fibrous monolith structure of Claim 28 wherein the conductive material is generally embedded within the structure and functions as one or more electrodes.

30. (previously presented) The multi-functional fibrous monolith structure in Claim 25 wherein one or more of the phases contains electrically insulating material.

31. (previously presented) The multi-functional fibrous monolith structure of Claim 1 wherein the inner ceramic phase and the outer ceramic phase include the essentially same material composition.

32. (withdrawn) A multi-functional fibrous monolith composite structure comprising an controlled arrangement of structural elements that each include a central portion of a first material for imparting a first functionality to the structure and an outer portion of a second material different from the first material and generally surrounding the first portion for imparting a second functionality to the structure, wherein the composite structure exhibits two or more discrete functional capabilities.

33. (new) A composite structure including one or more components comprising:

a first material selected from the group consisting of conductive ceramics, metal alloys, ceramic-metallic compositions and mixtures thereof;

a second material generally surrounding the first material, the second material selected from the group consisting of piezoelectric ceramics and electrostrictive ceramics; and

a third material generally surrounding the second material.

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34. (new) The composite structure of Claim 33 where the second material is selected from the group consisting of lead zirconate titanate, lead lanthanum zirconate titanate, lead barium zirconate titanate, lead stannate zirconate titanate, lead magnesium niobate, and mixtures thereof.

35. (new) The composite structure of Claim 34 wherein the first material is silver.

36. (new) The composite structure of Claim 33 wherein the first material is generally embedded within the structure and functions as one or more electrodes.

37. (new) The composite structure of Claim 33 wherein at least one of the second and third materials includes an electrically insulating material.

38. (new) A composite structure including one or more components comprising:

an inner phase including a ceramic material or a metallic material effective for functioning as a p-couple or an n-couple;

an intermediate phase including an insulating material; and

an outer phase including a ceramic material or a metallic material effective for functioning as a p-couple or an n-couple,

the one or more components capable of generating electricity.

39. (new) The composite structure of Claim 38 wherein the inner phase is ZrB_2, the intermediate phase is BN, and the outer phase is B_4C.

40. (new) The multi-functional fibrous monolith structure of Claim 39 wherein the structure is capable of generating an electric current.

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41. (new) The multi-functional fibrous monolith structure of Claim 39 where the structure prevents neutron-related damage of objects behind the structure.

42. (new) The multi-functional fibrous monolith structure of Claim 1 wherein the structure is capable of generating an electric current.